AMENDMENTS TO THE CLAIMS

1. (currently amended) An apparatus for transmitting digital information in a seismic data acquisition system, the apparatus comprising:

a) a transducer for providing the digital information comprising digital optical data signals transmitting multi-bit words using modulation by acting on an optical carrier; and

b) an optical interrogator coupled to the optical carrier for retrieving the digital information comprising the digital optical data signals from the optical carrier.

2. (original) The apparatus of claim 1 further comprising an optical source for providing the optical carrier to the transducer.

3. (original) The apparatus of claim 1, wherein the transducer receives a digital electrical signal input.

4. (original) The apparatus of claim 1, wherein the transducer modulates a property of the optical carrier.

5. (currently amended) The apparatus of claim 4, wherein the digital information comprising the digital optical data signals includes ~~include~~ symbol data indicative of the modulated properties of the modulated optical carrier.

6. (original) The apparatus of claim 4, wherein the modulated property includes one or more of amplitude and polarization.

7. (original) The apparatus of claim 1, wherein the transducer includes a mirror for reflecting at least a portion of the optical carrier.

8. (original) The apparatus of claim 7, wherein the mirror comprises a micro-machined mirror.

9. (original) The apparatus of claim 4, wherein the transducer further comprises a plurality of transducers.

10. (currently amended) The apparatus of claim 9, wherein the plurality of the transducers comprises ~~comprise~~ one or more of a Bragg grating and a liquid crystal device.

11. (original) The apparatus of claim 1, wherein the transducer receives a signal from one or more sensors.

12. (currently amended) The apparatus of claim 1[[,]] further comprising a power source charging circuit that receives optical power from a telemetry cable and converts the optical power to electrical power.

13. (original) The apparatus of claim 11, wherein the one or more sensors operate in a low power state.

14. (currently amended) The apparatus of claim 11, wherein the one or more sensors comprise one or more of i) an accelerometer; ii) a velocity sensor; iii) a hydrophone; iv) an electromagnetic sensor; v) a velocimeter; vi) a temperature sensor; vii) a heading sensor; viii) a flow sensor; and ix~~iii~~) an inertial sensor.

15. (currently amended) The apparatus of claim 3, wherein the transducer further comprises an interface circuit including a digital ~~an~~ electrical-to-digital optical data ~~digital~~ signal transducer.

16. (currently amended) A method of transmitting digital information in a seismic data acquisition system, the method comprising:

a) providing the digital information comprising digital optical data signals transmitting multi-bit words using modulation on an optical carrier using a transducer to act on the optical carrier;[[,]] and

b) retrieving the digital information comprising the digital optical data signals from the optical carrier using an optical interrogator.

17. (original) The method of claim 16 further comprising providing the optical carrier to the transducer using an optical source.

18. (original) The method of claim 16 further comprising providing a digital electrical signal input to the transducer.

19. (currently amended) The method of claim 16, wherein providing the digital information comprising the digital optical data signals on the optical carrier comprises modulating a property of the optical carrier.

20. (currently amended) The method of claim 19, wherein the digital information comprising the digital optical signals includes ~~include~~ symbol data indicative of the modulated property.

21. (original) The method of claim 19, wherein the modulated property includes one of more of amplitude and polarization.

22. (currently amended) The method of claim 16, wherein providing the digital information comprising the digital optical data signals on the optical carrier comprises reflecting the optical carrier using a mirror.

23. (original) The method of claim 22, wherein the mirror comprises a micro-machined mirror.

24. (currently amended) The method of claim 16, wherein the transducer further comprises a plurality of transducers ~~transducer~~ for modulating one or more properties of the optical carrier.

25. (currently amended) The method of claim 24, wherein the plurality of the transducers includes ~~include~~ one or more of a Bragg grating and a liquid crystal device.

26. (original) The method of claim 16, wherein the transducer receives a signal from one or more sensors.

27. (currently amended) The method of claim 16[[,]] further comprising receiving optical power from a telemetry cable at a power source charging circuit and converting the received optical power to electrical power.

28. (original) The method of claim 26, wherein the sensors operate in a low power state.

29. (currently amended) The method of claim 26, wherein the one or more sensors comprise one or more of i) an accelerometer; ii) a velocity sensor; iii) a hydrophone; iv) an electromagnetic sensor; v) a velocimeter; vi) a temperature sensor; vii) a heading sensor; viii) a flow sensor; and ix~~iix~~) an inertial sensor.

30. (currently amended) The method of claim 18 further comprising providing an interface circuit including a digital ~~an~~ electrical-to-digital optical data ~~digital~~ signal transducer.

31. (currently amended) An apparatus for acquiring digital seismic information, the apparatus comprising:

a) a sensor for sensing an environmental condition, the sensor providing a first signal indicative of the sensed environmental condition;

b) a transducer coupled to the sensor for receiving the first signal; and

c) an optical fiber coupled to the transducer, the transducer converting the received first signal to the digital seismic information comprising a digital optical signal transmitting a multi-bit word using modulation in the optical fiber.

32. (currently amended) The apparatus of claim 31, wherein the transducer modulates an optical carrier to convert the first signal to the digital seismic information comprising the digital optical signal.

33. (currently amended) The apparatus of claim 31, wherein the transducer includes a controllable reflector operable to modulate an optical carrier to convert the first signal to the digital seismic information comprising the digital optical signal.

34. (currently amended) The apparatus of claim 31, wherein the transducer includes a micro-machined ~~micromachined~~ reflector operable to modulate an optical carrier to convert the first signal to the digital seismic information comprising the digital optical signal.

35. (currently amended) The apparatus of claim 31, wherein the transducer includes an electromechanical actuator acting on the optical ~~optic~~ fiber to modulate an optical carrier in the optical fiber to convert the first signal to the digital seismic information comprising the digital optical signal.

36. (currently amended) The apparatus of claim 31, wherein the transducer includes a controllable light source, the transducer activating and deactivating the controllable light source in response to the first signal to convert the first signal to the digital seismic information comprising the digital optical signal.

37. (original) The apparatus of claim 31, wherein the sensor further includes an analog-to-digital converter, the first signal being a digital electrical signal.

38. (currently amended) A system for acquiring digital seismic information, the system comprising:

a) a sensor for sensing an environmental condition and providing a first signal indicative of the sensed environmental condition;

b) a transducer coupled to the sensor for receiving the first signal;

c) an optical fiber coupled to the transducer, the transducer converting the received first signal to the digital seismic information comprising a digital optical signal transmitting a multi-bit word using modulation in the optical fiber; and

d) a recorder recording information based at least in part on the digital seismic information comprising the digital optical signal, the recorded information being indicative of the sensed environmental condition.

39. (currently amended) The system of claim 38 further comprising a light source providing an optical carrier, the transducer operating on the optical carrier to convert the first signal to the digital seismic information comprising the digital optical signal.

40. (currently amended) A method of acquiring digital information relating to an environmental condition, the method comprising:

a) sensing the environmental condition with a sensor;

b) generating a first signal indicative of the sensed environmental condition;

c) converting the first signal to the digital information comprising a digital optical signal transmitting a multi-bit word using modulation in an optical ~~optic~~ fiber; and

d) transmitting the digital information comprising the digital optical signal in the optical ~~optic~~ fiber.

41. (currently amended) The method of claim 40, wherein converting the first signal to the digital information comprising the digital optical signal comprises activating and deactivating a light source.

42. (currently amended) The method of claim 404~~1~~, wherein converting the first signal to the digital information comprising the digital optical signal comprises acting on an optical carrier to generate the digital information comprising the digital optical signal.